

# Work Order ID 58413 -1

May 6, 2010 10:26:49 AM



Page 1

Item ID: D6011-115

Accept

Revision ID:

Item Name: Crosstube Material

Start Date: 5/06/10

Start Qty: 30.00

Required Date: 6/30/10

Req'd Qty: 30.00

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

QC:

Date: 10/15/10

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D6011

Rev A1

100

0.00



Purchasing

Purchasing

PURCHASING

Memo

0.00

Issue P/O: 11853 a) Order as per Dwg D6011 b) Material: 2.750 x 0.650 wall 7075-T6/T6511 (WW-T-700/7 or QQ-A-225/9 or QQ-A-200/11) seamless aluminum tube c) Minimum ultimate tensile strength = 77 ksi d) Minimum tensile yield strength = 66 ksi

110

0.00



Packaging

Packaging

Receive & Inspect for Damage & Mat'l Certs

Memo

0.00

Ensure material certification is attached

120

0.00



QC

Quality Control

QC6- Inspect dimensions to drawing

Memo

0.00

Ensure Material certification comply to Dwg

Cust Item ID:

Customer:



Setup

Start

Stop



C2 10/15/17

(30)

C2 10/15/15

(6)

8 10/10/10

(H)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DCA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Work Order ID 58413

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Item ID: D6011-115  
Revision ID:  
Item Name: Crosstube Material

Accept



Setup Start  
Stop



Start Date: 5/06/10 Start Qty: 30.00  
Required Date: 6/30/10 Req'd Qty: 30.00



Cust Item ID:  
Customer:

Reference:

Approvals: Process Plan:  
QC:

Date:  
Date:

Tooling:  
SPC (Y/N):

Date:  
Date:

Run Start  
Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

130  
Hand Finish  
Hand Finishing



Chemical Conversion Coat per QS1005 4.1

0.00

Memo

0.00

N/A

10.07.19

MAT#27

140  
Packaging



Identify as per dwg & Stock Location:

L-6

0.00

Memo

0.00

6 - - AWM  
10-07-19

150  
QC



QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

Quality Control

10-7-19

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

May 6, 2010 10:26:47 AM

Page 1

Work Order ID: 58413

Parent Item: D6011-115

Parent Item Name: Crosstube Material

Comments: IPP Rev:A 01.08.17 New Issue SM  
IPP rev B 07.09.18 rev A1 dwg EC verified by:JLM

Start Date: 5/06/10

Required Date: 6/30/10

Start Qty: 30.00

Required Qty: 30.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Qty Issued	Date Issued	Status
D6011-115P		Purchased	No			100	Each	0.0000	1			

Crosstube Material

10/7/05 (6)



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

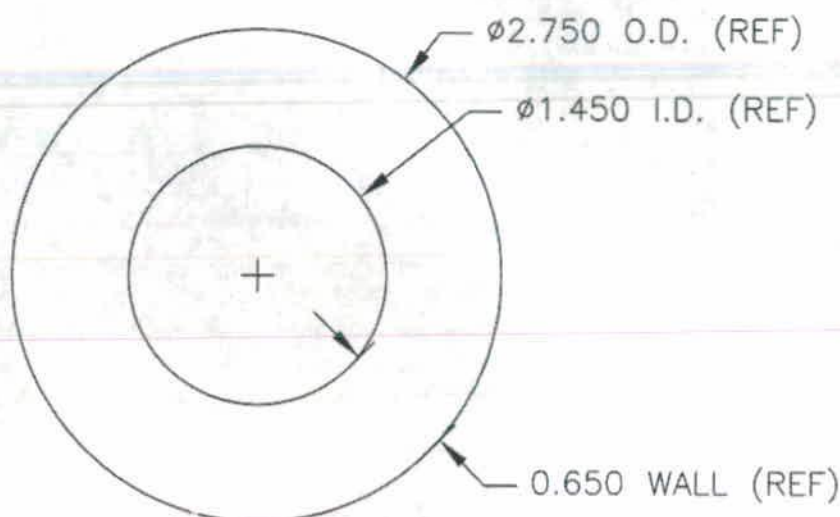
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**DART**

DESIGN #	DRAWN BY KF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D6011	REV. A SHEET 1 OF 1
DATE 01.08.16	TITLE CROSSTUBE MATERIAL	SCALE 1:1	
A	01.08.16	NEW ISSUE	
A1	02-01-29	UPDATE TOLERANCE ON OD	


## SPECIFICATION CONTROL DRAWING

**RELEASED**  
01-08-17 #c210/516  
w10:58413

### NOTES

- 1) D6011-XXX CROSSTUBE  
LENGTH

WHERE XXX IS LENGTH IN INCHES  
EG. 115" LONG TUBE: D6011-115

- 2) MATERIAL: 2.750 OD x 0.650 WALL 7075-T6/T6511 (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11) SEAMLESS ALUMINUM TUBE.  
MINIMUM ULTIMATE TENSILE STRENGTH = 77 ksi  
MINIMUM YIELD TENSILE STRENGTH = 66 ksi
- 3) TOLERANCES ARE PER ~~ASTM B210~~ AS FOLLOWS: ~~ANSI H35.2~~ AS FOLLOWS   
O.D.:  $\pm 0.006$  MEAN ( $\pm 0.012$  INCLUDING OVALITY)  $\pm 0.015$  MEAN ( $\pm 0.030$  INCL. OVALITY)  
WALL:  $\pm 0.020$  MEAN ( $\pm 0.065$  INCLUDING ECCENTRICITY)  
LENGTH: XXX  $+0.125/-0.000$   
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 5) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

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Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

\*\*\*PO REPRINT\*\*\*

Purchase Order ID PO11853

Purchase Order Date 5/07/10

PO Print Date 5/11/10

Page Number 1 of 2

Order From :

VU-ALU001

ALUMINIUMWERK UNNA AG  
UELZENER WEG 36, 59425 UNNA  
GERMANY, GERMANY

Contact Name

Vendor Phone 303 755 5936

Vendor Fax 303 755 5672

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

Tax Resale Nbr 10127-2607

Terms

Net 30

Currency

USD

FOB

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**FAXED**  
6/10/12

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req. Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
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1	D6008-132P	Crosstube extrusion	8/27/10 Yes	10.00 Each		\$1,121.0000	\$11,210.00
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Special Inst: AS PER DWG D6008 REV. A  
B58414  
MATERIAL: 7075-T6/T6511 (WW-T-  
700/7 OR QQ-A-225/9  
OR QQ-A-200/11 SEAMLESS TUBE  
SIZE : 3.250" X 0.438" WALL  
LENGTH: 132"  
MINIMUM ULTIMATE TENSILE  
STRENGTH = 77 KSI  
MINIMUM TENSIL STRENGTH = 66  
KSI  
TOLERANCE ARE PER ASTM B210

2	D6011-115P	Crosstube Material	8/27/10 Yes	15.00 Each	NEW 6/10/10	\$1,065.0000	\$15,975.00
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Special Inst: AS PER DWG D6011 REV. A  
B58413  
MATERIAL: 7075-T6/T6511 (WW-T-  
700/7 OR QQ-A-225/9  
OR QQ-A-200/11 SEAMLESS TUBE  
SIZE: 2.750" X 0.650" WALL  
LENGTH: 115"

**MATERIAL CERTIFICATION  
REQ'D UPON DELIVERY**

5/11/10





ALUnna ref. no.	36643/2
Customer PO.	P.O.11853
Date:	07.07.10

Dart Aerospace / P.O.11853 / D6011-115
Made in Germany / Dest. Hawkesbury Ont, Canada

Boxdimension

300	126	425	6
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# Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1- DIN EN 10204:2005

**Kunde:** Dart Aerospace Ltd.  
**Client:**

**Zeugnisnummer:** 882/10

Cert No.: / No. du certificat:

**Bestellnummer:** PO11853 / PO12020

Order No. / No. de commande

**Auftrag:** 36643/2

Our Reference/Notre Reference:

**Produkt:** Rohre nahtlos gepresst  
**Product / Produit:** Tubes seamless extruded

**Spezifikation:** AMS - QQ - A - 200/11; Spezifikation Dart Aerospace D6011-XXX  
**Specification:**

**Werkstoff:** 7075  
**Alloy/Alliage:**

**Zustand:** T6511  
**Temper/Etat:**

**Abmessung:** 2,750 INCH x 1,450 INCH x 0,650 INCH x 115,00 INCH  
**Size / Dimension:** buff finish

**Kennzeichnung:** ALUnna-Cert.No.882/10-7075-T6511-Cast No.3540-AMS-QQ-A-200/11-2.750"OD x 0.650"Wall-Heat Lot No.800916-  
**Marking/Marquage:** ALUnna Order Conf.No.36643/2-1-P.O.11853

**Lieferung:** pcs. lbs.  
**Delivered Material / Matériel délivré:** 6 300

## 1. Chemische Analyse Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni
Charge/ min.			1,2		2,1	0,18	5,1						
Cast No. max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20					
3540/09	0,100	0,196	1,558	0,060	2,593	0,188	5,685	0,039	0,002	0,0291	0,0001	0,0013	0,0050

Country of Manufacture: Germany

Elements without indication < 0,01 %

## 2. Mechanische Eigenschaften Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	Heat Lot No.
min.	77,0	66,0				
max.						
1	87,870	80,765	11,0			800916 - 6 pcs.
2	88,595	81,780	11,0			

RMS outside 25 - max. 9,9 µ"

**Ergebnis der Prüfungen:** Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

**Test results:** We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

07.07.2010 / Kr



Certified acc. DIN EN ISO 9001:2000 and DIN EN 9100:2003

valid until 2010-11-11

Cert.- Reg. No.: 001959 QM; 001959 ASH

Aluminiumwerk Unna AG, Uelzener Weg 36, 59425 Unna, Germany



ALUnna

Abnahmebeauftragter